? ..li max
1/3 - (C) WPI / DERWENT
AN - 98-457118 [39]
AP - WO98US02774 980213
PR - US970036805 970214; US970038179 970213
TI - New polypeptide for monitoring changes in molecular environment, especially release of synaptic vesicles - comprises targetting component and reporter producing optical signal in contact with second compartment, also new pH-sensitive mutants of green fluorescent protein and related nucleic acid
IW - NEW POLYPEPTIDE MONITOR CHANGE MOLECULAR ENVIRONMENT RELEASE SYNAPTIC
VESICLE COMPRISE TARGET COMPONENT REPORT PRODUCE OPTICAL SIGNAL CONTACT SECOND COMPARTMENT NEW PH SENSITIVE MUTANT GREEN FLUORESCENT
PROTEIN RELATED NUCLEIC ACID
IN - DE ANGELIS D A; MIESENBOCK G; ROTHMAN J E
PA - (SLOK ) SLOAN KETTERING INST CANCER RES
PN - ---WO9836081--- A2 980820 DW9839 C12N15/62 Eng 126pp
ORD - 1998-08-20
IC - A01K67/027 ; C07K14/435 ; C07K14/47 ; C07K14/705 ; C12N5/10 ; C12N9/02 ; C12N15/00 ; C12N15/62 ; G01N33/50
FS - CPI;GMPI;EPI
DC - B04 D16 P14 S03
DS - AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
DN - CA JP US
AB - WO9836081 New polypeptide (I) for monitoring changes in molecular environment involving contact with at least two compartments comprises (a) at least one amino acid (aa) sequence (Ia) that targets (I) to one compartment and (b) at least one aa sequence (Ib) that generates an optical signal when (I) is in contact with a second compartment.Also new are (1) nucleic acid (II) encoding (I); (2) plasmid containing (II) plus promoter; (3) cells containing (II); (4) transgenic animal in which germ and somatic cells contain (II); (5) mutants of Aequoria victoria green fluorescent protein (GFP) (III) in which at least one spectral property (intensity, excitation and/or emission spectra) is sensitive to pH; (6) fusion proteins of (III) with another aa sequence; (7) nucleic acid encoding (III) and its fusions.
- USE - (I) are particularly used to detect release of intracellular substances, specifically quantal release of synaptic vesicles (neurotransmitters), but also to monitor delivery of substances, e.g. drug-loaded liposomes to cells, or other cell-membrane fusion events, including screening for compounds that alter exocytotic processes (potential antidepressants), to detect contributions of individual proteins to exocytosis, possibly also to visualise processes such as receptor activation and intercompartment translocation.(III) are also useful for imaging, and measuring pH of, intracellular compartments, as labels in specific-binding assays, as reporters of protein expression and as pH indicators.
- ADVANTAGE - Genetic control of (I) expression allows analysis of cells, cultures, tissue sections etc. with determination of individual neurons, type of neuron, or element of a circuit (using viral vectors that spread through synaptic contacts). Several cells may be revealed simultaneously and non-invasively by fluorescent microscopy.